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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/838,070	04/19/2001	Hasan Dindi	1856-08101	9565

7590 09/25/2003  
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EXAMINER

STRICKLAND, JONAS N

ART UNIT	PAPER NUMBER
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1754

DATE MAILED: 09/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/838,070	DINDI ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Jonas N. Strickland	1754	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 July 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 3-14, 17-27, 30-34 and 37-43 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 3-14, 17-27, 30-34 and 37-43 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
     If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \*    c) ☐ None of:  
         1. ☐ Certified copies of the priority documents have been received.  
         2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
         3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
     \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
     a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |                                                                                              |                                                                             |
|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Response to Amendment*

1. This Detailed Action is in response to the amendment filed on 7/16/03 as Paper No. 8. Applicant has amended the specification. Claims 1, 2, 15, 16, 28, 29, 35, and 36 have been cancelled. Claims 39-43 are newly added claims. Therefore, claims 3-14, 17-27, 30-34, and 37-43 are currently pending.

2. The amendment filed 7/16/03 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: "the feed stream is preheated to at least about 350°C, and more preferably to about 400°C".

Applicant is required to cancel the new matter in the reply to this Office Action.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 3, 4, 6-14, 17-19, 21-27, 30, 31, 33, 34 and 41-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mercera et al. (WO 99/37580) in view of Hershkowitz et al. (US Patent 5,883,138) and Jacobs et al. (US Patent 5,510,056).

Mercera et al. discloses a catalyst comprising a catalytically active metal, which includes, rhodium, wherein the catalyst is used in a process for the preparation of carbon monoxide and/or hydrogen from the partial oxidation of a hydrocarbonaceous feedstock using the catalyst. The catalyst is comprised of a monolithic structure, such as ceramic foam (p. 12, lines 15-21). Mercera et al. also discloses wherein the catalyst may be supported on a carrier or may be unsupported (p. 4, lines 28-32). However, Mercera et al. does not disclose wherein the monolithic porous metal foam comprises rhodium and has a 75-90% by volume pores and 20-100 pores per inch pore size.

However, Hershkowitz et al. teaches a catalytic partial oxidation process for the production of synthesis gas. Hershkowitz et al. continues to teach wherein the catalyst may be comprised of rhodium and platinum and that one or more metals can be combined with other metals as a metal monolith (col. 9, lines 59-66). Hershkowitz et al. continues to disclose wherein the feedstream is preheated to a temperature of 100°-700°C (col. 12, lines 10-12). Hershkowitz et al. continues to teach wherein the catalytic partial oxidation zone may be comprised of a ceramic or metallic foam monolith (col. 4, lines 64-67).

Jacobs et al. teaches a process for the catalytic partial oxidation of hydrocarbons. The catalyst composition may comprise rhodium and be in the form of a monolithic foam structure (col. 5, lines 39-64). Jacobs et al. also teaches wherein it is known in the art to have metal coated monolith structures having a porosity of 30 to 50 pores per inch (col. 2, lines 10-20).

Therefore, it would have been obvious to one of ordinary skill in the art to modify the teachings of Mercera et al., by having a monolithic porous metal foam comprises rhodium and has a 75-90% by volume pores and 20-100 pores per inch pore size, because Hershkowitz et al. teaches a catalyst may be comprised of rhodium wherein the catalytic partial oxidation zone may be comprised of a ceramic or metallic foam monolith and Jacobs et al. teaches wherein it is known in the art to have metal coated monolith structures having a porosity of 30 to 50 pores per inch. Furthermore, it would have been obvious to expect at least 75-90% by volume pores, since the monolithic porous metal foams are porous and exhibit the instantly claimed pores per inch. Also, it would have been obvious to one of ordinary skill in the art, since both Hershkowitz et al. and Jacobs et al., both teach having rhodium and metallic foam monolith structures. Such modification of Mercera et al., would have been obvious to one of ordinary skill in the art, since Mercera et al., Hershkowitz et al., and Jacobs et al. are directed towards partial oxidation processes, using rhodium on foam substrates.

With respect to claim 9, Mercera et al. discloses wherein the operating pressure of the reaction is in the range of from 2 to 125 bar, more preferably from 5 to 100 bar (p. 11, lines 3-8). With respect to claim 10, Mercera et al. discloses a ratio of oxygen- to-carbon ratio in the range of from 0.3 to 0.8 (p. 10, lines 20-22). Mercera et al. continues to disclose, with respect to claim 11, wherein the feed is comprised of methane in an amount of at least 50% by volume (p. 9, lines 15-17). With respect to claims 12 and 13, see Table 1 of Jacobs et al. With respect to claim 14, Mercera et al. discloses wherein the gas hourly space velocity may be in the range of 20,000 to 100,000,000 NI/kg/hr.

With respect to claims 41-43, it would have been obvious to one of ordinary skill in the art to achieve the desired catalyst activity times and disks, since Mercera et al. in view of Hershkowitz et al., and Jacobs et al. are directed towards partial oxidation processes, using rhodium on foam substrates. Furthermore, it would have been obvious to one of ordinary skill in the art to use any number of disks (i.e. 10) in the catalyst based on its intended use. It would have been obvious to one of ordinary skill in the art to use additional disks to gain a cumulative effect as held by *In re Harza* 124 USPQ 378.

6. Claims 5, 20, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mercera et al. (WO 99/37580) in view of Hershkowitz et al. (US Patent 5,883,138) and Jacobs et al. (US Patent 5,510,056) as applied to claims 3, 4, 6-14, 17-19, 21-27, 30, 31, 33, 34 and 41-43 above, and further in view of Fujitani et al. (US Patent 4,087,259).

Applicant claims with respect to claims 5, 20, and 32 wherein the catalyst is pretreated by exposure to air under conditions to oxidize the catalyst. The teachings of Mercera et al., Hershkowitz et al., and Jacobs et al. have been discussed with respect to claims 3, 4, 6-14, 17-19, 21-27, 30, 31, 33, 34 and 41-43 but Mercera et al., Jacobs et al. and Hershkowitz et al. do not teach the limitations of claims 5, 20, and 32.

However, Fujitani et al. teaches wherein a rhodium catalyst, which is used in a process for partially oxidizing hydrocarbons to a synthesis gas, exhibits consistent activity either in the form of a metal or in the form of an oxide (col. 2, lines 30-33).

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Therefore, it would have been obvious to preheat the catalyst and use the oxidized catalyst in a partial oxidation process.

7. Claims 37, 39, and 40 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Jacobs et al. (US Patent 5,510,056).

Jacobs et al. teaches a process for the catalytic partial oxidation of hydrocarbons. The catalyst composition may comprise rhodium and be in the form of a monolithic foam structure (col. 5, lines 39-64). Jacobs et al. also teaches wherein it is known in the art to have metal coated monolith structures having a porosity of 30 to 50 pores per inch (col. 2, lines 10-20). Jacobs et al. continues to teach wherein the catalyst is capable of oxidizing the hydrocarbon feedstock with a hydrogen selectivity of at least about 60% (see Table 1). The catalyst may also comprise platinum.

The Examiner recognizes claim 39 as a product-by-process claim. The Patent Office bears a lesser burden of proof in making out a case of *prima facie* obviousness for product-by-process claims. Once a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983).

8. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jacobs et al. (US Patent 5,510,056) as applied to claims 37, 39, and 40 above, and further in view of Fujitani et al. (US Patent 4,087,259).

Applicant claims with respect to claim 38 wherein the catalyst is pretreated by exposure to air under conditions to oxidize the catalyst. The teachings Jacobs et al. have been discussed with respect to claims 37, 39 and 40, but Jacobs et al. does not teach the limitations of claim 38.

However, Fujitani et al. teaches wherein a rhodium catalyst, which is used in a process for partially oxidizing hydrocarbons to a synthesis gas, exhibits consistent activity either in the form of a metal or in the form of an oxide (col. 2, lines 30-33). Therefore, it would have been obvious to preheat the catalyst and use the oxidized catalyst in a partial oxidation process.

#### ***Response to Arguments***

9. Applicant's arguments with respect to claims 3-14, 17-27, 30-34, and 37-43 have been considered but are moot in view of the new ground(s) of rejection.

#### ***Conclusion***

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any




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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonas N. Strickland whose telephone number is 703-306-5692. The examiner can normally be reached on M-TH, 7:30-5:00, off 1st Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 703-308-3837. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-0661.

  
Jonas N. Strickland  
September 14, 2003

  
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